Claims

1. Method for the automatic data acquisition by means of a means for the same, of forms whose design and information content is not known in advance, by input into the said means, together with storage of patterns of the same, wherein the method is adaptive and includes self-learning and registration of the design of forms without initial scanning of a blank form sheet being necessary, whereby it includes the following steps to accomplish the adaptive registration:

generation of a form map based on a previously unknown form's design for identifying information contained on the form;

searching and comparing the form map with stored, registered maps in a means for storing form maps;

storage of generated form maps in the storage means when they do not coincide with a stored map according to pre-determined limits for agreement;

indication of agreement according to the limits for agreement when agreement is found; and

continued data acquisition for identifying the information content of the form.

2. Method according to claim 1, wherein the form map consists of an object area list with objects contained in the form.

3. Method according to claim 2, wherein the object comprises colours and wholly or partly of text.

4. Method according to claim 1, wherein the form map constitutes a line map comprising line elements from the form.

5. Method according to claim 4, wherein horizontal lines in the line map are used to generate a horizontal key by dividing the form into a pre-determined number of horizontal segments along the y-axis in a cartographic system of co-ordinates, whereby each segment is equivalent to a position horizontal key.

6. Method according to claim 4, wherein vertical lines in the line map are used to generate a vertical key by dividing the form into a pre-determined number of vertical segments

along the x-axis in a cartographic system of co-ordinates, whereby each segment is equivalent to a position in the vertical key.

7. Method according to claim 5, wherein at least one line element that is included in a segment is marked in the equivalent key position, and that segments that lack line elements remain unmarked in the equivalent key position.

8. Method according to claim 4, wherein the horizontal key and/or a vertical key constitute a line key in the line map, whereby, during the said searching, the line key generated is compared with line keys stored in the storage means for verifying agreement.

9. Method according to claim 8, wherein the line keys are sorted in the storage means according to the number of markings.

10. Method according to claim 1, wherein the object's horizontal position in the object area list is used to generate a horizontal key by dividing the form into a pre-determined number of horizontal segments along the y-axis in a cartographic system of co-ordinates, whereby each segment is equivalent to a position in the horizontal key.

11. Method according to claim 1, wherein the object's vertical position in the object area list is used to generate a vertical key by dividing the form into a pre-determined number of vertical segments along the x-axis in a cartographic system of co-ordinates, whereby each segment is equivalent to a position in the vertical key.

12. Method according to claim 10, wherein at least one object that is included in a segment is marked in the equivalent key position, and that segments that lack objects remain unmarked in the equivalent key position.

13. Method according to claim 10, wherein a horizontal key and/or a vertical key constitute an object key in the object area list, whereby, during the said searching, the object key generated is compared with object keys stored in the storage means for verifying agreement.

14. Method according to claim 13, wherein the object keys are sorted in the storage means according to the number of markings.

15. Method according to claim 1, wherein the searching results in a pre-defined number of requested probable candidates for the currently searched form.

16. Method according to claim 15, wherein an operator can support manually the whole or parts of the adaptive registration or identification of the new form or registered forms respectively if several alternative candidates are found as probabilities according to a factor of merit.

17. Method according to claim 1, wherein the identity of the form is confirmed by the data acquisition of a RCG-value.

18. Arrangement for the automatic data acquisition, by means of a means for the same, of forms whose design and information content is not known in advance, by input into the said means together with storage of patterns of the same, wherein it learns adaptively and registers the design of forms without initial scanning of a blank form sheet being necessary, and includes a computer with the following means for carrying out the adaptive registration:

means for generating a form map based on the previously unknown form's design for identifying information contained on the form;

means for searching and comparing the form map with stored, recognised maps in a means for storing form maps;

means for storage of generated form maps in the storage means when they do not coincide with a stored map according to pre-determined limits for agreement;

means for indicating agreement according to the limits for agreement when agreement is found; and

means for identification and continued data acquisition of the information content of the form.

19. Arrangement according to claim 18 wherein the form map consists of an object area list with objects contained in the form.

20. Arrangement according to claim 19, wherein the object comprises colours and/or wholly or partly of text.

21. Arrangement according to claim 18, wherein the form map constitutes a line map comprising line elements from the form.

22. Arrangement according to claim 21, wherein the horizontal lines in the line map are used to generate a horizontal key by dividing the form into a pre-determined number of horizontal segments along the y-axis in a cartographic system of co-ordinates, whereby each segment is equivalent to a position in the horizontal key.

23. Arrangement according to claim 21, wherein the vertical lines in the line map are used to generate a vertical key by dividing the form into a pre-determined number of vertical segments along the x-axis in a cartographic system of co-ordinates, whereby each segment is equivalent to a position in the vertical key.

24. Arrangement according to claim 22, wherein at least one line element that is included in a segment is marked in the equivalent key position, and that segments that lack line elements remain unmarked in the equivalent key position, and that segments that lack line elements remain unmarked in the equivalent key position.

25. Arrangement according to claim 22, wherein the horizontal key and a vertical key constitute a line key in the line map, whereby, during the said searching, the line key generated is compared with line keys stored in the storage means for verifying agreement.

26. Arrangement according to claim 25, wherein the line keys are sorted in the storage means according to the number of markings.

27. Arrangement according to claim 18, wherein the object's horizontal position in the object area list is used to generate a horizontal key by dividing the form into a pre-determined number of horizontal segments along the y-axis in a cartographic system of co-ordinates, whereby each segment is equivalent to a position in the horizontal key.

28. Arrangement according to claim 18, wherein the object's vertical position in the object area list is used to generate a vertical key by dividing the form into a pre-determined

number of vertical segments along the x-axis in a cartographic system of co-ordinates, whereby each segment is equivalent to a position in the vertical key.

29. Arrangement according to claim 27, wherein at least one object that is included in a segment is marked in the equivalent key position, and that segments that lack objects remain unmarked in the equivalent key position.

30. Arrangement according to claim 27, wherein a horizontal key and/or a vertical key constitute an object key in the object area list, whereby, during the said searching, the object key generated is compared with object keys stored in the storage means for verifying agreement.

31. Arrangement according to claim 30, wherein the object keys are sorted in the storage means according to the number of markings.

32. Arrangement according to claim 18, wherein the searching results in a pre-defined number of requested probable candidates for the currently searched form.

33. Arrangement according to claim 32, wherein an operator can support manually the whole or parts of the adaptive registration or identification of the new form or registered forms respectively if several alternative candidates are found as probabilities according to a factor of merit.

34. Arrangement according to claim 18, wherein the identity of the form is confirmed by the data acquisition of a ReCoGnition (RCG)-value which uniquely identifies a form.